MANUFACTURE OF CARBON/CARBON COMPOSITES BY HOT PRESSING

ABSTRACT OF THE DISCLOSURE

A mixture of carbon-containing fibers, a suitable matrix material, such as a milled pitch, and a friction additive is compressed while resistively heating the mixture to form a carbonized composite material. Preferably, the carbonized material has a density of at least about 1.3 g/cm^3. Preferably, the composite material is formed in less than ten minutes. This is a significantly shorter time than for conventional processes, which typically take several days and achieve a lower density material. Consequently, carbon/carbon composite materials having final densities of about 1.6-1.8 g/cm^3 or higher are readily achieved with one or two impregnation cycles using a pitch or other carbonaceous material to fill voids in the composite and rebaking. In a second embodiment, the additive is impregnated into the compressed mixture with or without the mixture including the additive.